Biodegradation of phenol and its derivatives in packed and moving bed bioreactors using *Bacillus* sp. isolated from petroleum site



Thesis submitted in partial fulfillment for the

Award of degree

DOCTOR OF PHILOSOPHY

By
Ganesh Swain

Under the supervision of

Prof. B. N. Rai

Dr. Ravi P. Jaiswal

INDIAN INSTITUTE OF TECHNOLOGY

BANARAS HINDU UNIVERSITY

VARANASI-221005

Roll. No: 17041001 2022